

REMARKS/ARGUMENTS

Reconsideration and allowance in view of the foregoing amendment and the following remarks are respectfully requested.

Claims 1-2, and 4-8 are now pending.

The Examiner noted that claims 9-18 were withdrawn from further consideration. To advance prosecution, non-elected claims 9-18 have been canceled without prejudice or disclaimer. Applicant reserves the right to pursue the subject matter of these claims in a divisional application.

The Examiner objected that the title of the invention is not descriptive. The title has been revised above as suggested by the Examiner.

The Examiner objected to the Abstract of the Disclosure as including language that can be implied. The Abstract of the Disclosure has been revised to obviate this objection.

Claims 1-8 were rejected under 35 USC 112, second paragraph, as being indefinite. The claims have been reviewed and revised bearing in mind the Examiner's objections. It is believed that all claims are now in full compliance with 35 USC 112, all paragraphs, and it is therefore respectfully requested that the rejection be withdrawn.

Original claims 1-8 were rejected under 35 USC § 103(a) as being unpatentable over Lundsager et al in view of JP '903. Applicant respectfully traverses this rejection.

It was an object of the invention to provide a method for molding a relatively wide, thin ceramic sheet using a screw extruder having a small diameter while suppressing wrinkling of the ceramic sheet. In this regard, applicant discovered that when extruding a thin ceramic sheet, the ceramic sheet is especially liable to wrinkle if the width of the sheet is greater than or equal to 3 times the diameter of the extrusion screw. Thus, the present invention was developed to solve the problem of wrinkling of a

ceramic sheet that is extruded from an extruder having a relatively small diameter extrusion screw.

Lundsager discloses a process for molding a ceramic sheet using a screw extruder. Lundsager does not, however, disclose or address any problem of ceramic sheet wrinkling and, as recognized by the Examiner, does not teach or suggest dividing the mold into a plurality of transverse temperature controlled areas, nor a process of extrusion molding wherein the temperature of a plurality of transverse areas is regulated during the extrusion process, e.g., to suppress the wrinkling problem addressed by applicants.

Recognizing that Lundsager does not disclose dividing the mold into a plurality of transverse areas for which the temperature is regulated, the Examiner relies upon the secondary reference to JP '903. As noted by the Examiner and as acknowledged in the partial English language translation of claims 1-3 and page 4, lines 13-15 of JP '903 supplied by applicant, JP '903 does disclose a process for molding a ceramic sheet using an extruder in which the mold is divided into a plurality of transverse areas, for each of which temperature is regulated in the process of extrusion molding. However, JP '903 does not teach or suggest to the skilled artisan the feature of the invention, that wrinkling can be suppressed in a case where the screw extruder is relatively small as compared to the width of the ceramic sheet being molded by providing temperature regulation as claimed by applicant. Indeed, JP '903 does not associate a wrinkling problem with a small diameter extrusion screw nor teach or suggest any criticality to temperature regulated areas associated with the screw extruder. It is therefore respectfully submitted that JP '903 does not teach or suggest to the skilled artisan that Lundsager should be modified to include a plurality of transverse temperature regulated areas, in particular where the width of the ceramic sheet and diameter of the extrusion screw have the relationship recited in applicant's claim 1.

In regard to the relationship between the screw diameter and the width of the ceramic sheet, the Examiner has summarily concluded that the determination of the screw diameter would have been a matter of routine experimentation because the

diameter "parameter would have obviously been selected to optimize the process conditions and/or the properties of the final product". Applicant respectfully disagrees with the Examiner's summary conclusion that the sheet width/extrusion screw diameter relation recited in claim 1 would have been "obvious" in the combination claimed. In this regard, the recited parameter is not selected "to optimize the process conditions and/or the properties of the final product. Rather, it is a threshold size relation which applicant has recognized leads to wrinkling of the ceramic sheet such that the temperature regulation embodying the invention will be effective to suppress wrinkling that would otherwise occur. Thus, the recited width/diameter relation is not "an optimization" but rather a threshold recognized by applicants as generating an undesirable effect, that is wrinkling of the ceramic sheet. The specific limitation of the invention to temperature regulation of a plurality of transverse areas, when the recited size relation is met, realizes the recited objective of substantially suppressing wrinkling. For the foregoing reasons it is respectfully submitted that without the benefit of applicant's disclosure, the skilled artisan would not recognize the criticality of the ceramic sheet screw diameter characteristic nor that providing temperature regulation of the transverse areas of an extruder/mold having the recited size relation will advantageously act to suppress the undesirable ceramic sheet wrinkling.


Reconsideration of the Examiner's proposed combination of Lundsager and JP '903 is respectfully requested and reconsideration of the patentability of claims 1-2 and 4-8 is respectfully solicited.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance and an early Notice to that effect is earnestly solicited.

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Respectfully submitted,

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